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Learn  veryWare

# Math 5 Unit 2



## Workbook



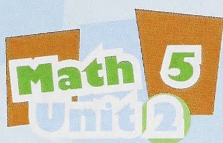
we explore



**Alberta**  
Education







Math 5 Learn EveryWare – Unit 2 Workbook  
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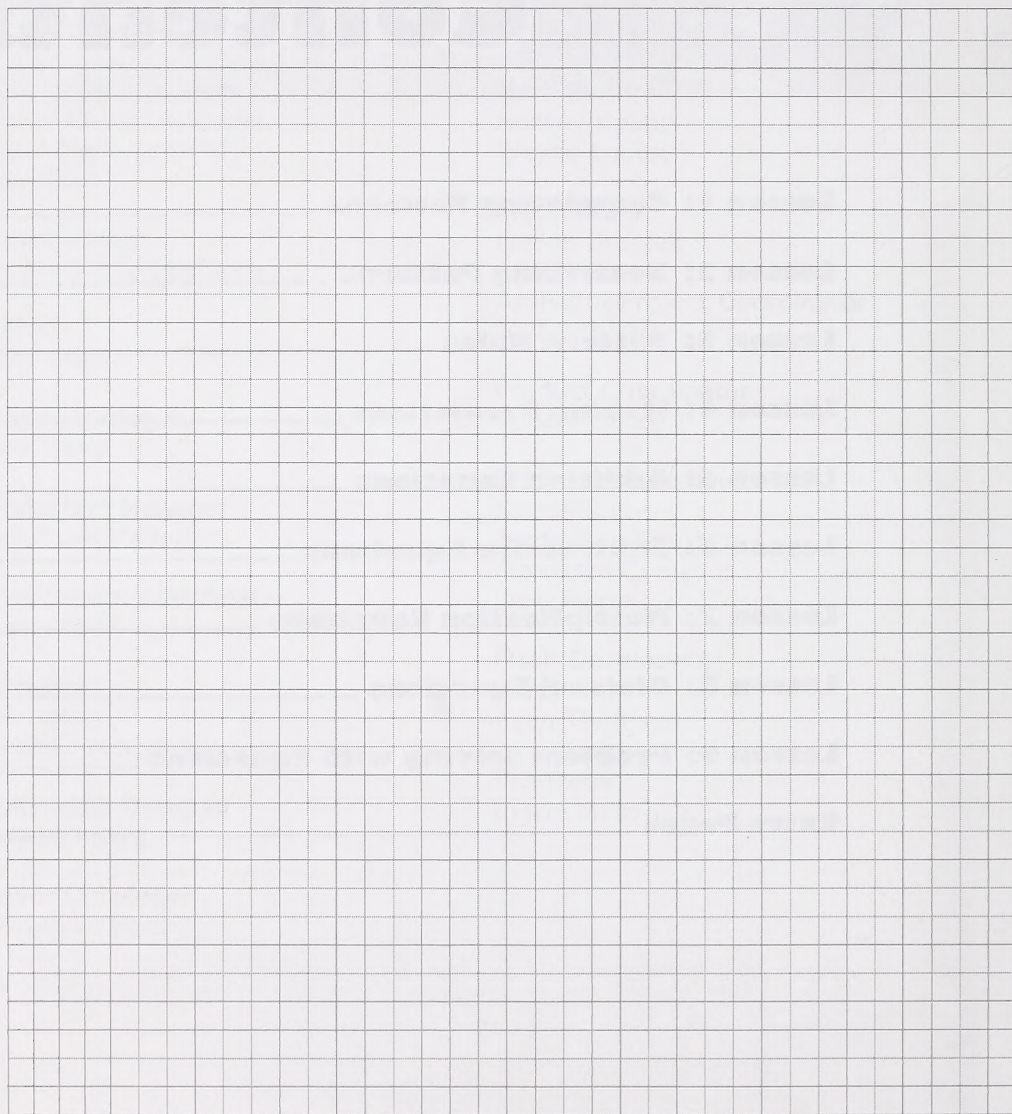
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# Lesson 1

## Completing Patterns



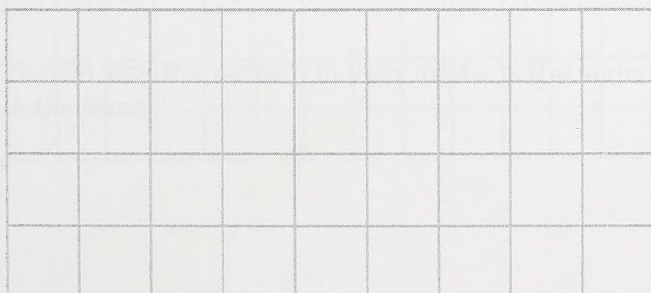
### Exploration 1: Tile Patterns

**Materials:** A pencil, Crayons

Mrs. Jones is planning the new floor for her house. She is having tiles installed in a pattern in her kitchen. She has decided to use 4 different colours in her pattern.



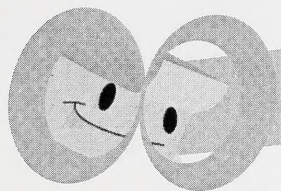
1. Study the tile pattern that Mrs. Jones has chosen for her kitchen floor.
2. Reproduce the pattern using your crayons. Use the tile grid provided.



## Lesson 1: Completing Patterns

3. What do you notice about the pattern?
4. Now extend the pattern by colouring in more tiles.
5. Use the smaller tiles and your crayons to create your own pattern. Describe it in words.





Let's Explore



## Exploration 2: Long Jump

**Materials:** Square Counters, Pencil

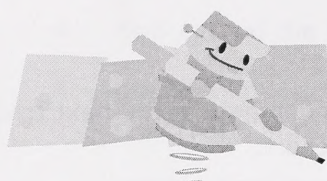
David is practicing the long jump so he can compete in the next track meet. He keeps a record of his jumps in a chart.

Day	Metres
Monday	2
Tuesday	2.5
Wednesday	3
Thursday	
Friday	

- Using your Square Counters, make a model of the information shown in the chart.
- Explain why the pattern in your model is the same as the pattern in the chart.

# Lesson 1: Completing Patterns

3. Decide if David will be able to jump four metres on Friday.



## Let's Practice

**For 1 - 10: Complete the following patterns.**

1. ● ● ▲ ● ● ▲ \_\_\_\_ \_\_\_\_ \_\_\_\_

2. ▲ ■ ▲ ▲ ■ ■ \_\_\_\_ \_\_\_\_ \_\_\_\_

3. ● ■ ▲ ■ ● ■ ▲ ■ \_\_\_\_ \_\_\_\_ \_\_\_\_ \_\_\_\_

4. 4, 5, 6, 4, 5, 6, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

5. 2, 6, \_\_\_\_\_, 14, 18, 22, 26



# Lesson 1: Completing Patterns

6. 94, 89, 84, 79, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

7.

A	B
2	8
3	12
4	
5	
6	24

8.

A	B
28	4
35	
42	6
49	7
	8



## Lesson 1: Completing Patterns

9.

A	B
	25
7	35
9	
11	
	65

10.

A	B
	11
32	16
42	
52	
	31

**For 11 - 12: Which of the following numbers will correctly complete the following patterns?**

11. \_\_\_\_\_, 18, 27, 36

- A. 1
- B. 12
- C. 9
- D. 15





## Lesson 1: Completing Patterns

12. 3, 9, 15, \_\_\_\_\_, 27

- A. 21
- B. 22
- C. 18
- D. 16

**For 13 - 14: What is the rule for the following patterns? Explain how you know.**

13. 54, 50, 46, 42, 38

Rule:

Explanation:

14. 10, 22, 34, 46, 58

Rule:

Explanation:

## Lesson 1: Completing Patterns

**For 15 - 16: Use the following pattern.**



15. Describe the next element:

16. What generalization can you make about this pattern?

**For 17 - 18: Use the following pattern.**



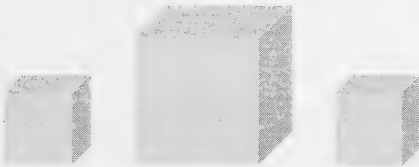
17. Describe the next element:



## Lesson 1: Completing Patterns

18. What generalization can you make about this pattern?

**For 19 - 20: Use the following pattern.**



19. Describe the next element:

20. What generalization can you make about this pattern?



## Lesson 1: Completing Patterns

**For 21 - 23: Create some patterns of your own to follow the different rules.**

21. add 4 \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

22. subtract 3 \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

23. multiply by 2 \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

24. Reflect: Name three places where you can see patterns.



1. Add.  $1.45 + 0.25$  \_\_\_\_\_





## Lesson 1: Completing Patterns

2. Subtract.  $1.234 - 0.340$  \_\_\_\_\_

3. Multiply.  $12 \times 20$  \_\_\_\_\_



## Lesson 1: Completing Patterns

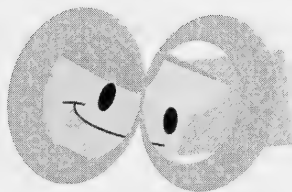
4. Divide.  $125 \div 5$  \_\_\_\_\_

5. Complete the mathematical sentence:

$$4 + \underline{\hspace{1cm}} = 12$$

# Lesson 2

## Describing Patterns



Let's Explore



### Exploration 1: Number Patterns

**Materials:** Pencil

Can you describe the pattern between Column A to Column B in the following chart?

A	B
10	8
8	6
6	4
4	2
2	0

1. Is the pattern increasing or decreasing from Column A to Column B?





## Lesson 2: Describing Patterns

2. Can you subtract a number from the first to get the second?  
If yes, what number?
3. Now, describe the pattern out loud and also in writing.



### Exploration 2: Mathematical Expressions

**Materials:** Pencil

**Can you write a mathematical expression to describe the relationship between  $n$  and its corresponding element?**

$n$	Rule	<input type="checkbox"/>
40		33
30		23
20		13
10		3



## Lesson 2: Describing Patterns

**Here are some questions to answer:**

1. What pattern do you find when you look across each row?
2. Can you subtract from each number to get the next?  
If yes, what number?
3. What is the rule for this table?
4. What is the mathematical expression for this table?



## Lesson 2: Describing Patterns



### Let's Practice

**For 1 - 2: Describe the following pattern out loud and then in writing:**

4, 8, 12, 16, 20, 24

1. You could say:

2. You could write:

**For 3 - 4: Describe the following pattern out loud and then in writing:**

19, 15, 11, 7, 3

3. You could say:

4. You could write:



## Lesson 2: Describing Patterns

**For 5 - 7: Use the table to answer the questions:**

<b>A</b>	<b>B</b>
16	24
18	26
20	28
22	30

5. Describe the pattern in Column A.

You could say:

You could write:

6. Describe the pattern in Column B.

You could say:

You could write:

## Lesson 2: Describing Patterns

7. Describe the relationship of the pattern in Column A to the pattern in Column B.

You could say:

You could write:

**For 8 - 10: Use the table to answer the questions:**

A	B
5	30
6	36
7	42
8	48

8. Describe the pattern in column A.

You could say:

You could write:



## Lesson 2: Describing Patterns

9. Describe the pattern in column B.

You could say:

You could write:

10. Describe the relationship of the pattern in Column A to the pattern in Column B.

You could say:

You could write:

**For 11 - 13: Complete the tables below and write a mathematical expression to describe the relationship between the columns.**

11.

n	Rule	
11	11	21
12	12	22
13	13	23
14	14	24

Mathematical expression:

\_\_\_\_\_



## Lesson 2: Describing Patterns

12.

n	Rule	_____
30	30 -	16
35	35	21
40	40	26
45	45	31

Mathematical expression: \_\_\_\_\_

13.

n	Rule	_____
20	20 + = 42	42
21		43
22		44
23		45

Mathematical expression: \_\_\_\_\_

14. Create your own table and write the mathematical equation.

n	Rule	

Mathematical expression: \_\_\_\_\_

## Lesson 2: Describing Patterns

15. Reflect: Write your own definition of a variable.

### Mixed Review

For 1 - 2:


- Write a decimal for the model: \_\_\_\_\_
- Write a fraction for the model: \_\_\_\_\_
- Write a decimal for: "two tenths" \_\_\_\_\_

**Lesson 2: Describing Patterns**

4. Write a fraction for: "one-third" \_\_\_\_\_

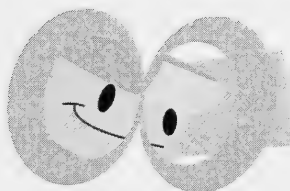
5. 3.057 What number is in the hundredths place? \_\_\_\_\_





# Lesson 3

## Pattern Rules



Let's Explore



### Exploration 1: Mathematical Expressions

**Materials:** Pencil

Can you write a mathematical expression to show the relationship between A and B?

A	B
4	12
5	13
6	14
7	15
8	16

1. What is the pattern in Column B?

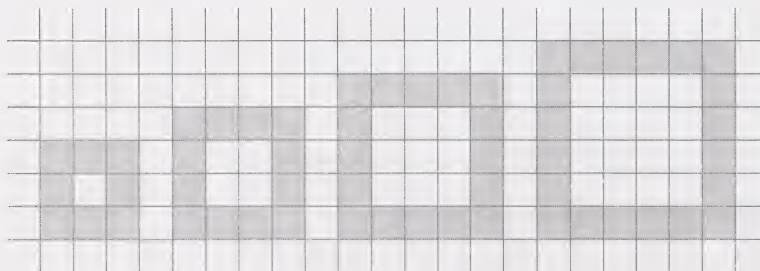
## Lesson 3: Pattern Rules

2. What operation can you perform on 4 to get 12?
3. Does this work for every pair?
4. What is the mathematical expression to show the relationship between A and B?



### Exploration 2: Doughnut Pattern

**Materials:** Grid Paper from the back of this Unit in your Workbook, Pencil, Paper



1. On your grid paper, create the doughnut pattern shown here. Label each figure with the number of shaded squares.

### **Lesson 3: Pattern Rules**

2. What is the pattern for the number of shaded squares?
  
  
  
  
  
  
  
  
  
  
3. Can you add the same number to the figure number to get the number of shaded squares? Why or why not?
  
  
  
  
  
  
  
  
  
  
4. Can you find another way to get the number of shaded squares from the figure number using number operations?
  
  
  
  
  
  
  
  
  
  
5. Describe the relationship between the figure number and the number of shaded squares in words and with a rule.  
Write your rule as an expression.

## Lesson 3: Pattern Rules

6. Extend the pattern for the next five possible figures. You can do this without creating the shapes if you figured out the pattern.

Figure Number	1	2	3	4	5	6	7	8
Number of Shaded Squares	8	12	16	20				



### Let's Practice

**For 1 - 2:** Write the mathematical expression that will let you find B.

1. \_\_\_\_\_

2. \_\_\_\_\_

A	B
18	12
19	13
20	14
21	15
22	16

A	B
8	24
9	27
10	30
11	33
12	36



## Lesson 3: Pattern Rules

**For 3 - 12: Complete the following tables and write a corresponding mathematical expression.**

3.

A	Rule	B
72		39
73		40
74		41
75		42
76		43

4.

A	Rule	B
7		49
8		56
9		63
10		70
11		77

5.

A	Rule	B
		25
49		24
		23
47		22
46		

6.

A	Rule	B
6		72
7		84
8		
		108
		120

7.

A	Rule	B
21		32
22		33
23		34
24		35
25		36

8.

A	Rule	B
14		27
15		28
16		29
17		30
18		31

### Lesson 3: Pattern Rules

9.

A	Rule	B
9		36
10		40
11		44
12		48
13		52

10.

A	Rule	B
42		30
41		29
40		28
39		27
38		26

11.

A	Rule	B
34		
35		
		16
		17
38		18

12.

A	Rule	B
15		45
16		48
17		51
18		54
19		57

13. Create your own table and write the mathematical expression.

A	Rule	B

Mathematical expression: \_\_\_\_\_

### Lesson 3: Pattern Rules

14. Enrichment: Describe the following pattern using a mathematical expression.

A	Rule	B
2		5
3		7
4		9
5		11
6		13

Hint: This is a two-step rule.  
It could be a combination of addition,  
subtraction or multiplication.

Mathematical expression: \_\_\_\_\_

15. Reflect: Describe at least 3 real world examples of tables with patterns.

### Mixed Review

In this figure there are 5 squares.



### Lesson 3: Pattern Rules

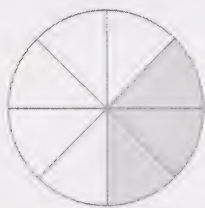
Explanation: 4 squares are small and 1 square is large. The large square is on the outside.



- Find the number of squares in this figure and explain your answer:



**For 2 - 5: Use the given figure to answer the following questions.**



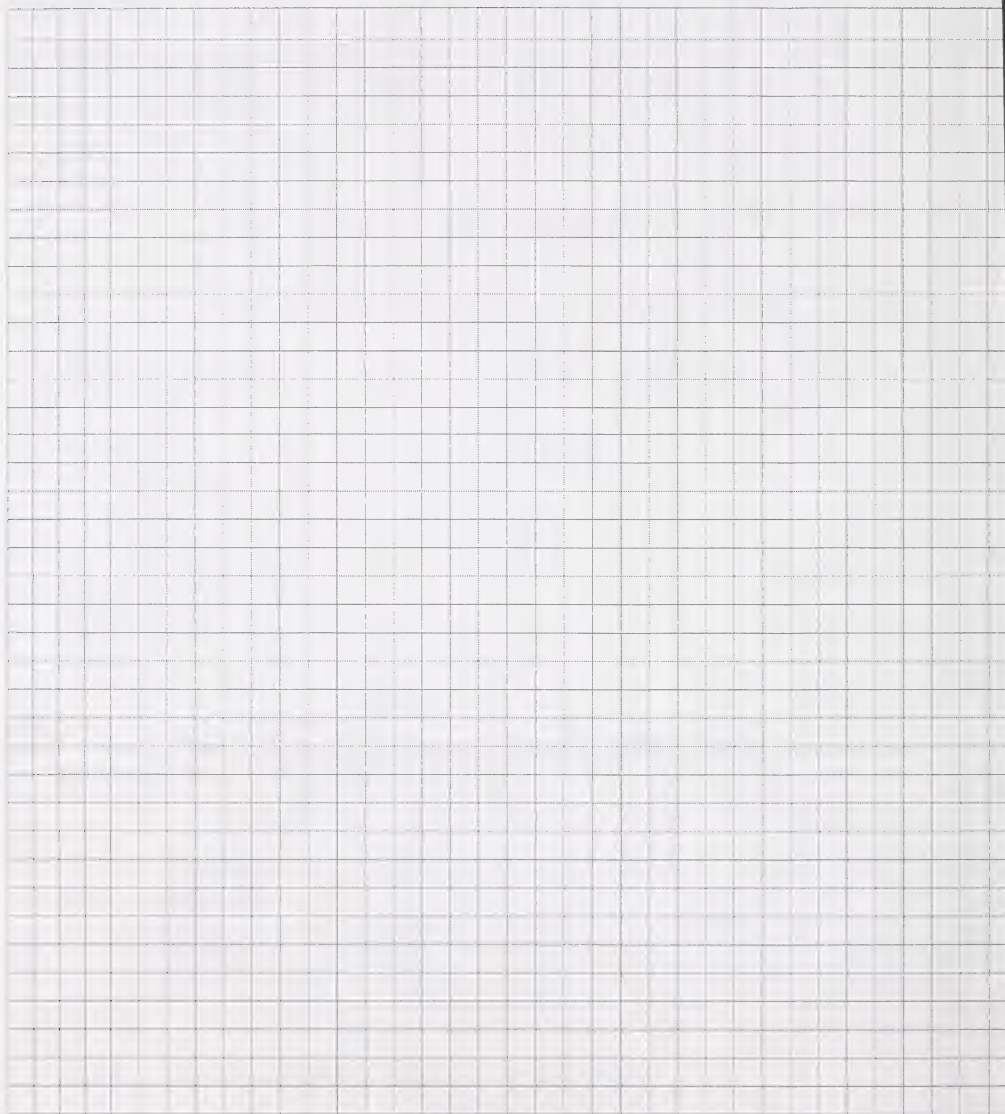
- What is the total number of parts in the circle? \_\_\_\_\_



**Lesson 3: Pattern Rules**

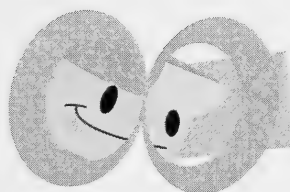
3. How many parts are shaded? \_\_\_\_\_
4. How many parts are not shaded? \_\_\_\_\_
5. What fraction of the circle is shaded? \_\_\_\_\_

### Lesson 3: Pattern Rules



# Lesson 4

## Making Predictions



Let's Explore



### Exploration 1: Pattern Prediction

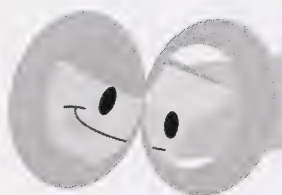
**Materials:** Cubes or your Square Counters, Paper, Pencil



1. Create the fourth figure of this pattern using your materials.
2. Describe how you created the fourth figure.
  
3. Describe how you would create the fifth figure without using your materials.

## Lesson 4: Making Predictions

4. How many squares will be in the tenth figure of the pattern?
5. Explain how you predicted the tenth figure of the pattern.



Let's Explore



### Exploration 2: Car Wash

**Materials:** Pencil

Lian's school is having a car wash. Each student is given a book of tickets as shown in the table. How many tickets are there in 100 books?

Number of Books	Number of Tickets
1	5
2	10
3	15
4	20
5	25



## Lesson 4: Making Predictions

1. What pattern do you see?
2. What can you multiply 1 by to get 5?
3. Does that rule work for the rest of the elements?
4. Predict how many tickets there are in 100 books.
5. Describe in words how you found your answer to number 4.

## Lesson 4: Making Predictions



### Let's Practice

1. Create a model of Column B using grid paper and find the 10th element.

A	B
1	2
2	5
3	8
4	11
5	14

**For 2 - 4: Alyssa has a bank account to save money for her vacation.**

Months	Balance in Dollars
1	25
2	50
3	75
4	100
5	125

2. How much will she have saved in month 6?

- For 5 - 7: You are starting a new job. Your salary will be 1 cent the first day and then your salary is doubled every day.**

5. List your salary on day 10.



## Lesson 4: Making Predictions

6. How much will you make on day 20?
7. What is the first day that you will make at least \$10?

**For 8 - 9: Cameron is being paid for gardening jobs. His pay is in the table shown.**

Number of Jobs	Pay in Dollars
2	18
3	36
6	54
7	63
8	72

8. How much will he make for working ten jobs?  
How much for fifteen jobs?



## Lesson 4: Making Predictions

9. What is the rule to translate hours of work to dollars of pay?

**For 10 - 12: You are buying some candy for you and your friends. The cost of the candy is shown in the table.**

Number of Pieces of Candy	Cost in Dollars
10	1.50
20	3.00
30	4.50
40	6.00
50	7.50

10. You want to buy 100 pieces of candy. How much will the candy cost?
11. You have \$12 to spend on candy. How much can you buy?



## Lesson 4: Making Predictions

12. What is the cost of one piece of candy?
13. Sunshine Elementary School must have a certain number of adults for the number of students on the spring field trip. For 135 children, how many adults are needed?

Number of Students	18	24	30	36	42	48	54	60
Number of Adults	3	4	5	6	7	8	9	10

**For 14 - 16: The tickets for the school carnival are on sale.**

Number of Tickets	Cost in Dollars
10	5
20	10
30	15
40	20
50	25

14. How many tickets can Daksha purchase for \$40?

## Lesson 4: Making Predictions

15. What is the price of each ticket?
  
  
  
  
  
  
  
  
  
  
16. How did you get your answer for question 14?
  
  
  
  
  
  
  
  
  
  
17. Reflect: What do you like most about solving problems with tables and charts and why?



### Mixed Review

1. Add:  $3.02 + 4.56$



## Lesson 4: Making Predictions

2. Subtract:  $5.76 - 4.2$

3. Multiply:  $25 \times 8$

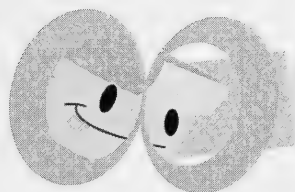
4. Divide:  $72 \div 9$

5. Solve: There are 12 friends going to the movies. Tickets are \$6 each. How much will it cost for the friends to see the movie?



# Lesson 5

## Addition Equations



Let's Explore

### Exploration 1: Solving Addition Equations

**Materials:** Two-Part Mat and Algebra Tiles, both from the back of this Unit in your Workbook, Paper, Pencil

1. Model the equation  $x + 5 = 8$  and solve. Describe the process to a neighbour.
2. Model the equation  $x + 4 = 10$  and solve. Describe the process to a neighbour.
3. Model the equation  $x + 7 = 15$ . Do NOT solve. Describe in writing what you should do to solve the equation.
4. Complete the following statement: To solve the equation  $x + 5 = 9$  with algebra tiles I would \_\_\_\_\_ 5 ones tiles from each side.



## Lesson 5: Addition Equations

5. How many tiles would you have to remove from both sides of the mat to solve  $m + 7 = 10$ ?
  
6. What operation would you use to describe the removing of the tiles from both sides of the equation?

### The rule for solving addition equations

To solve an addition equation, ? the number added to the variable from each side of the equation



### Let's Practice

**For 1 - 24: Solve each equation.**

1.  $x + 8 = 12$

2.  $n + 7 = 18$

3.  $m + 13 = 21$



## Lesson 5: Addition Equations

4.  $y + 3 = 8$

5.  $z + 8 = 15$

6.  $c + 3 = 9$

7.  $4 + a = 19$

8.  $16 = 8 + b$

9.  $14 = d + 4$

10.  $h + 25 = 52$

11.  $f + 17 = 37$

12.  $45 + w = 67$

13.  $y + 27 = 81$

14.  $z + 18 = 51$

15.  $c + 32 = 49$

16.  $53 + j = 84$

17.  $62 = k + 23$

18.  $p + 34 = 87$



## Lesson 5: Addition Equations

19.  $78 = 19 + r$

20.  $v + 24 = 51$

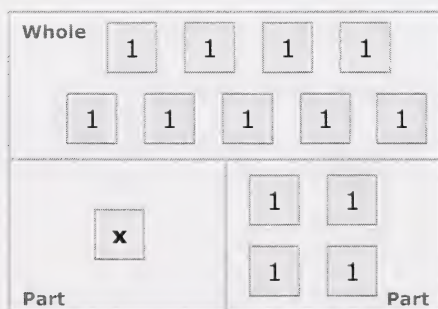
21.  $18 = 12 + q$

22.  $y + 92 = 124$

23.  $150 + b = 186$

24.  $29 = x + 15$

25. Write an addition equation for the part-part-whole model given:



26. Draw in the figures to make a part-part-whole model of  $5 + x = 8$ .





## Lesson 5: Addition Equations

**For 27 - 36: Write an equation for each sentence.**

27. the sum of twenty and a number equals 54
28. some number and 4 together, is 18
29. 14 increased by a number is seventeen
30. three more than the number of bran muffins baked is 12
31. 32 seconds is two seconds faster than Lian's time
32. 25 is the sum of a number and 10
33. a number and seven is 65
34. the sum of 13 and a number yields 28
35. the quantity of some number and eighty is 94



## Lesson 5: Addition Equations

36. a number increased by fourteen is seventy
37. Reflect: Write an equation and solve. Sketch the part-part-whole model for the equation. Explain the method you used to solve the equation.

### Mixed Review

**Solve.**

1.  $200 \times 8 = \underline{\hspace{2cm}}$
2.  $20 \times 81 = \underline{\hspace{2cm}}$
3.  $50 \times 7 = \underline{\hspace{2cm}}$
4.  $170 \times 9 = \underline{\hspace{2cm}}$
5. Compare with  $<$ ,  $>$  or  $=$ :  $\frac{2}{3} \underline{\hspace{1cm}} \frac{1}{3}$



# Lesson 6

## Subtraction Equations



Let's Explore



### Exploration 1: Rule for Subtraction Equations

**Materials:** Algebra tiles, Part-whole mat, Pencil, Paper

**Model the following equations on your mat and solve using the rule.**

1.  $x - 5 = 8$       2.  $h - 6 = 2$       3.  $k - 4 = 1$       4.  $m - 3 = 7$

5. Describe what you did to find the answer.

6. How does using the tiles help you understand the operation?

## **Lesson 6: Subtraction Equations**



### **Let's Practice**

**For 1 - 18: Solve each equation and check.**

1.  $x - 8 = 3$

2.  $v - 3 = 12$

3.  $b - 9 = 4$

4.  $h - 6 = 7$

5.  $p - 2 = 8$

6.  $r - 7 = 12$

7.  $y - 12 = 21$

8.  $16 = f - 6$

9.  $43 = h - 12$

10.  $a - 14 = 34$

11.  $53 = r - 32$

12.  $j - 34 = 28$

## Lesson 6: Subtraction Equations

13.  $q - 42 = 55$

14.  $27 = t - 14$

15.  $34 = w - 13$

16.  $g - 29 = 65$

17.  $z - 32 = 54$

18.  $45 = r - 22$

**For 19 - 24: Write an equation for each sentence.**

19. 12 less than a number is 15

20. the difference between a number and 14 is seven

21. a number decreased by eleven equals fourteen

22. twenty equals a number minus seven



## Lesson 6: Subtraction Equations

23. Zach's time decreased by 25 seconds is 34 seconds

24. fourteen less than some number yields 54

**For 25 - 30: Addition and subtraction sentences are mixed below. Write an equation for each sentence.**

25. fourteen more than a number is 28

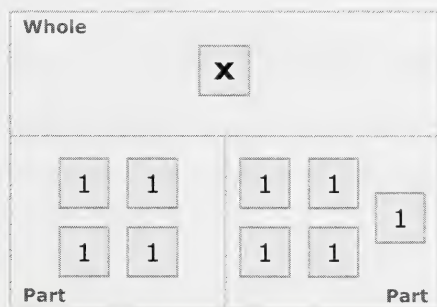
26. the difference between a number and seven is nine

27. fifteen less than some number equals eight

28. twenty increased by a number is thirty

## Lesson 6: Subtraction Equations

29. a number decreased by eleven equals 18
30. 15 plus a number is 18
31. Reflect: Write a sentence for the part-whole model.



## Mixed Review

**For 1 - 5: Compare using  $<$ ,  $>$ , or  $=$ .**

1.  $0.45$  \_\_\_\_\_  $0.35$
2.  $0.4$  \_\_\_\_\_  $0.6$



**Lesson 6: Subtraction Equations**

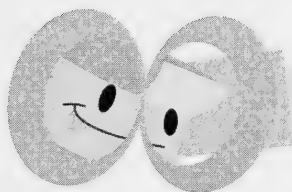
3.  $0.9 \underline{\hspace{1cm}} 0.91$

4.  $0.6 \underline{\hspace{1cm}} 0.64$

5.  $0.32 \underline{\hspace{1cm}} 0.23$

# Lesson 7

## Multiplication Equations



Let's Explore

### Exploration 1: Solving Multiplication Equations

**Materials:** Algebra Tiles, Two-part mat, Paper, Pencil

Create the models for each of the following equations and solve using algebra tiles.

**Can you discover the rule for solving multiplication equations?**

1.  $2h = 14$

2.  $3r = 6$

3.  $5w = 15$

4.  $4y = 20$

5. The rule for solving a multiplication equation is:

\_\_\_\_\_ divide both sides by the coefficient of the variable.



## Lesson 7: Multiplication Equations

**For 1 - 20: Solve and check each equation.**

1.  $3x = 12$

2.  $8x = 64$

3.  $2m = 56$

4.  $7y = 56$

5.  $4k = 36$

6.  $81 = 9z$

7.  $72 = 6w$

8.  $5j = 45$

9.  $21m = 63$

10.  $12q = 48$

11.  $10y = 200$

12.  $15p = 45$

13.  $5h = 75$

14.  $12c = 108$

15.  $7u = 210$

16.  $5g = 345$

17.  $3f = 66$

18.  $40 = 8v$

19.  $28 = 7a$

20.  $5b = 210$



## Lesson 7: Multiplication Equations

**For 21 - 26: Write an equation for each sentence.**

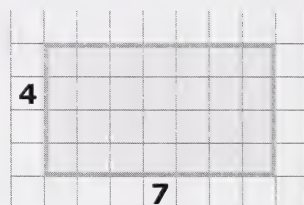
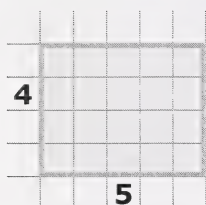
21. five times a number is 35
22. the product of twenty-five and a number equals fifty
23. a number times eight equals sixty-four
24. seven times a number is fourteen
25. the product of a number and eleven equals 132
26. twice a number is fifty-six
27. Reflect: What is the inverse operation of multiplication? Give an example to explain your answer.

# Lesson 7: Multiplication Equations

## Mixed Review

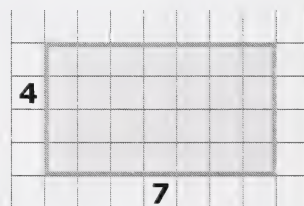
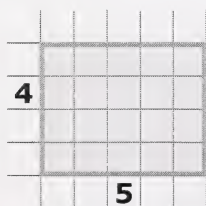
**For 1 - 2: Find the perimeter of the figures shown:**

1. Perimeter = \_\_\_\_\_ 2. Perimeter = \_\_\_\_\_



**For 3 - 4: Find the area of the figures shown:**

3. Area = \_\_\_\_\_ 4. Area = \_\_\_\_\_



5. What is the relationship between A and B?

A	B
1	6
2	12
3	18
4	24
5	30



# Lesson 8

## Division Equations



Let's Explore

### Exploration 1: Division Equations

**Materials:** Pencil

Solve the following division equations using the rectangle provided. Separate the rectangle into the sections needed to model the problem.

1.  $\frac{m}{3} = 4$

2.  $\frac{m}{2} = 3$

3.  $\frac{m}{6} = 3$

4.  $\frac{m}{5} = 4$

## Lesson 8: Division Equations

5. What is the operation that you would use to find the answer?
6. Can you find the answer using the operation without the model? Why or why not?



## Let's Practice

**For 1 - 18: Solve the following and check.**

1.  $n \div 3 = 5$

2.  $y \div 9 = 9$

3.  $m \div 12 = 6$

4.  $\frac{W}{8} = 3$

5.  $\frac{t}{7} = 8$

6.  $\frac{y}{5} = 4$



## Lesson 8: Division Equations

7.  $k \div 6 = 7$

8.  $\frac{j}{2} = 13$

9.  $g \div 7 = 2$

10.  $\frac{p}{8} = 4$

11.  $q \div 4 = 9$

12.  $\frac{c}{6} = 8$

13.  $y \div 9 = 2$

14.  $\frac{b}{7} = 4$

15.  $u \div 5 = 7$

16.  $\frac{d}{6} = 4$

17.  $\frac{r}{8} = 5$

18.  $\frac{w}{4} = 3$

**For 19 - 23: Write an equation for each sentence.**

19. a number divided by six equals eight



## Lesson 8: Division Equations

20. the quotient of a number and 8 is seven

21. a number divided by 7 equals four

22. some number divided by five is eleven

23. the quotient of a number and nine is ten

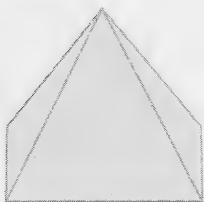
24. Reflect: What types of equations are your favourites to solve, and why?

# Lesson 8: Division Equations

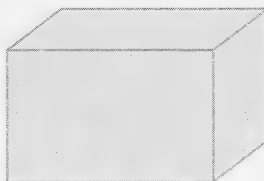
## Mixed Review

1. Which of the following is a right rectangular prism? \_\_\_\_\_

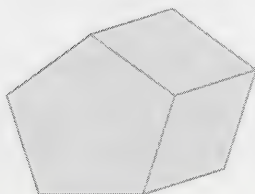
a.



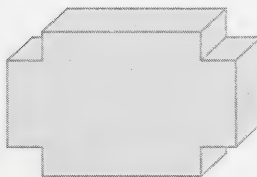
b.



c.

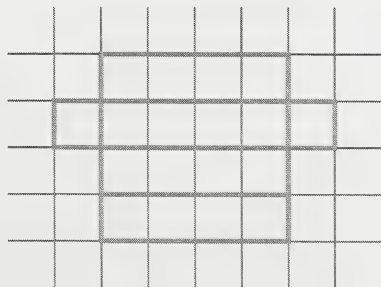


d.

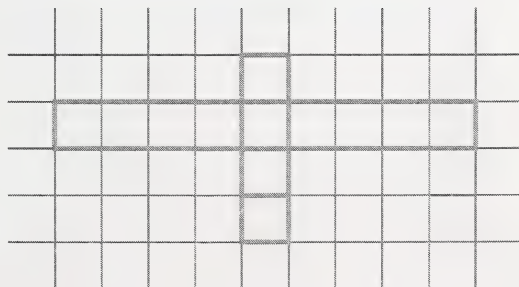


**For 2 - 3: Can you construct a right rectangular prism from the following nets? Yes or no.**

2. \_\_\_\_\_



3. \_\_\_\_\_





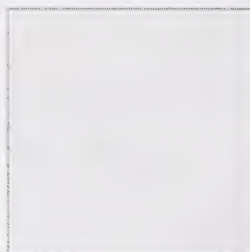
# Lesson 8: Division Equations

For 4 - 6: Draw all lines of symmetry on these figures.

16.



17.



18.



# Lesson 9

## Problem Solving with Equations



Let's Explore

### Exploration 1: Problem Solving with Addition and Subtraction Equations

**Materials:** Pencil

1. Write a word problem that will translate into an addition equation.  
Write the equation and solve the problem.
2. Write a word problem that will translate into a subtraction equation.  
Write the equation and solve the problem.

**Let's Practice****Addition and Subtraction Equations**

**For 1 - 5: Write an equation and solve each word problem.**

1. Cameron's uncle's salary plus a \$200 bonus gave him a total of \$4 000 for the week. How much is Cameron's uncle's salary?
  - a. Define a variable:
  - b. Write an equation:
  - c. How much is Cameron's uncle's salary?
2. Zach had some plastic bottles for recycling. After placing 12 of them in the recycling bin he had 14 left. How many plastic bottles did Zach originally have?
  - a. Define a variable:

**Lesson 9: Problem Solving with Equations**

- b. Write an equation:
- c. How many plastic bottles did Zach originally have?
3. Alyssa is  $x$  years old. In eleven years she will be twenty-two years old. How old is Alyssa?
- a. Define a variable:
- b. Write an equation:
- c. How old is Alyssa?
4. Nina withdrew  $d$  dollars from her savings account. Her old balance was \$350, and her new balance is \$280. How many dollars did Nina withdraw?



## Lesson 9: Problem Solving with Equations

- a. Define a variable:
  - b. Write an equation:
  - c. How many dollars did Nina withdraw?
5. Lian lives on a street that has beautiful gardens. There are blooming trees that grow on the sides of the road. There are 18 trees on both sides of the road. Twelve of them grow on one side of the road. How many trees grow on the other side of the road?
- a. Define a variable:
  - b. Write an equation:
  - c. How many trees grow on the other side of the road





## Lesson 9: Problem Solving with Equations

### Multiplication and Division Equations

**For 6 – 10: Define a variable and write an equation for each word problem and then solve.**

6. Alyssa bought some raisins. Each box of raisins cost 25 cents. The price of all of Alyssa's boxes of raisins is 250 cents. How many boxes of raisins did she buy?
  - a. Define a variable:
  - b. Write an equation:
  - c. How many boxes of raisins did she buy?
7. A large pizza pie has equal sized slices and is shared among 6 students so that each student's share is 3 slices. How many slices are there on the pizza?
  - a. Define a variable:

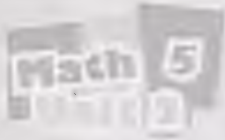


## Lesson 9: Problem Solving with Equations

- b. Write an equation:
  
  
  
  
  
  
  
- c. How many slices are there on the pizza?
  
  
  
  
  
  
  
- 8. Four children are playing tennis together. They each brought six tennis balls. How many tennis balls do they have all together?
  - a. Define a variable:
  
  
  
  
  
  
  
  - b. Write an equation:
  
  
  
  
  
  
  
  - c. How many tennis balls do they have all together?
  
  
  
  
  
  
  
- 9. Daksha's aunt bought some cartons of eggs. Each carton had twelve eggs. There were 60 eggs in all. How many cartons of eggs did Daksha's aunt buy?

## Lesson 9: Problem Solving with Equations

- a. Define a variable:
  - b. Write an equation:
  - c. How many cartons of eggs did Daksha's aunt buy?
- 
10. The students ordered several pizzas and sliced each one into four pieces. There are now twenty pieces of pizza. How many pizzas did the students order?
    - a. Define a variable:
    - b. Write an equation:
    - c. How many pizzas did the students order?



## Lesson 9: Problem Solving with Equations

### For 11 - 14: Mixed Word Problems

11. Some third grade students are going on a field trip to see a play. Each van they will take can carry seven students. They are taking eight vans. How many students can go on the trip?
  - a. Define a variable:
  - b. Write an equation:
  - c. How many students can go on the trip?
  
12. A caterpillar travels 6 centimetres each hour. He is 36 centimetres away from a piece of food. How many hours will it take him to reach the piece of food?
  - a. Define a variable:
  - b. Write an equation:



## Lesson 9: Problem Solving with Equations

- c. How many hours will it take him to reach the piece of food?
13. Zach goes to the animal shelter with his parents to adopt a pet. He is told that there are 95 animals in the shelter. He counts 16 cats and the rest are dogs. How many dogs are in the shelter?
- a. Define a variable:
- b. Write an equation:
- c. How many dogs are in the shelter?
14. After paying \$12 for dinner Lian has \$45. How much money did Lian have before dinner?
- a. Define a variable:





## Lesson 9: Problem Solving with Equations

- b. Write an equation:
  - c. How much money did Lian have before dinner?
15. Reflect: What do you find most challenging about writing equations for word problems? Why?

## Lesson 9: Problem Solving with Equations

### Mixed Review

**For 1 - 4:** For each of the following, add the elements of the set to the Carroll diagram or Venn diagram.

1.  $\{5, 13, 16, 20, 61\}$

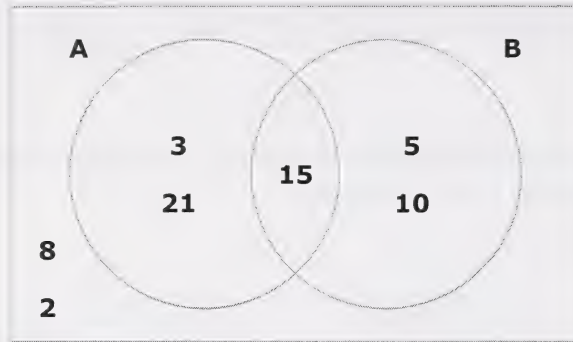
	Prime	Not Prime
Less than 20	3 7 11	4 8 9 15 18
Not Less than 20	23 47 91	28 45

2.  $\{3, 18, 23, 54, 58, 81, 96\}$

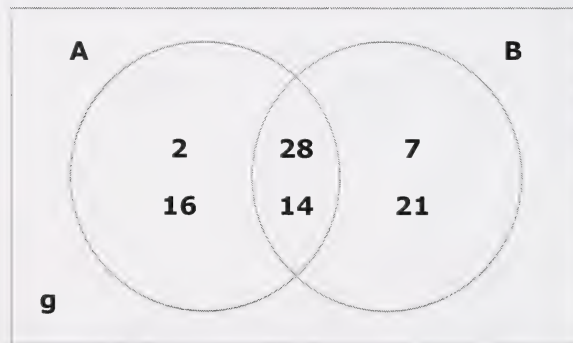
	Divisible by 6	Not Divisible by 6
Divisible by 3	6 12 24	15 21 33
Not Divisible by 3		10 16 26

## Lesson 9: Problem Solving with Equations

3.  $\{6, 18, 25, 45, 60\}$



4.  $\{23, 49, 70, 82, 84, 91\}$

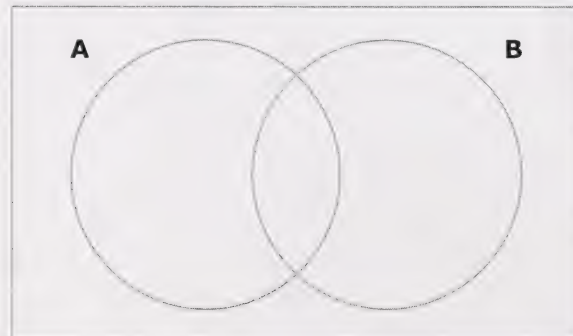


5. Complete the Venn diagram using the set and the rules shown:

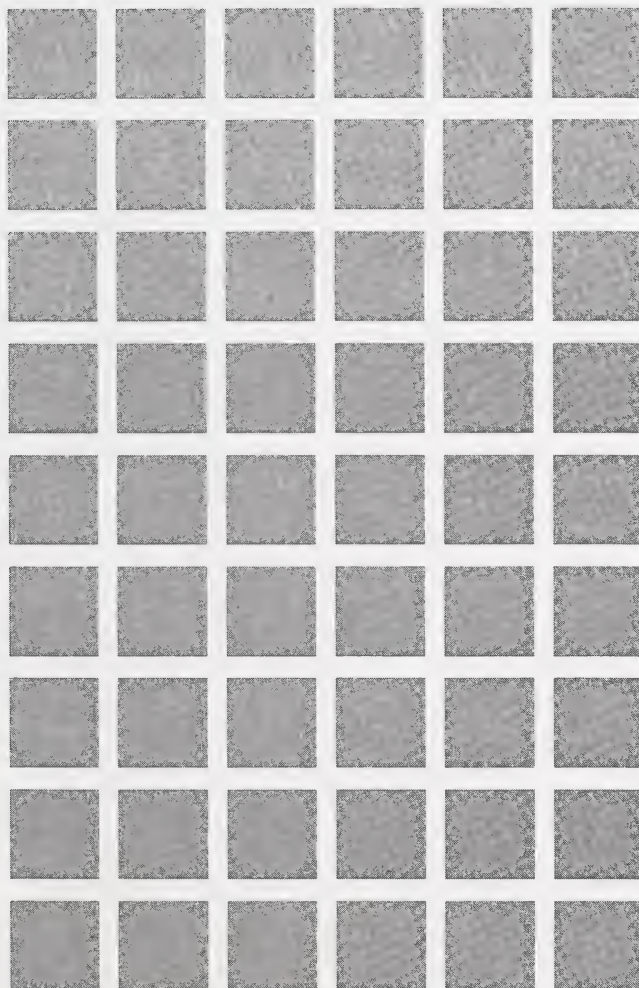
$\{2, 5, 6, 8, 9, 12, 13, 15, 16\}$

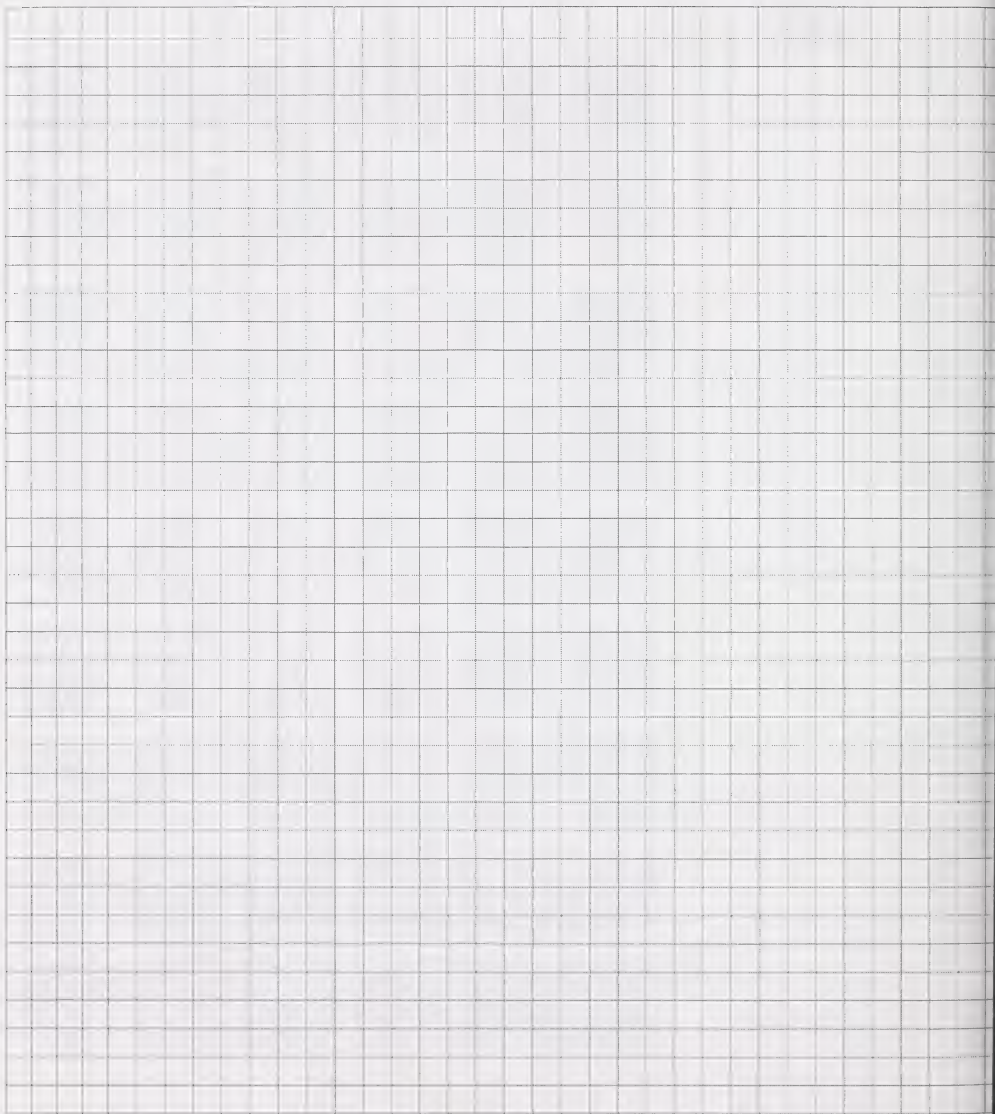
A = greater than 8

B = Even

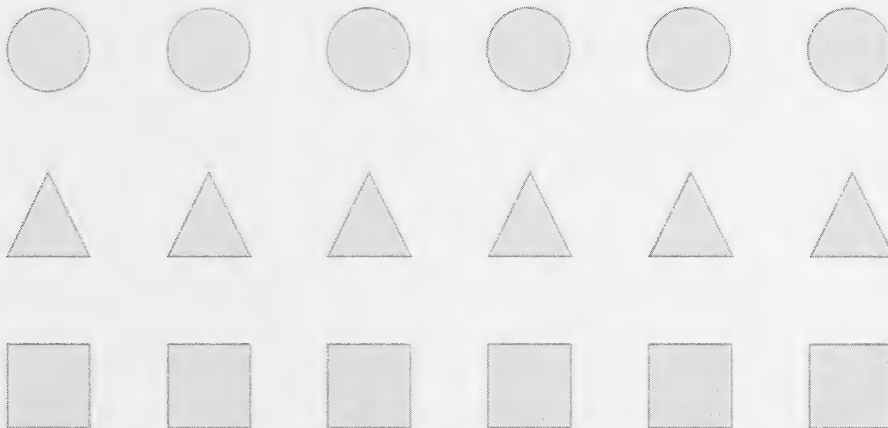


## Square Counters

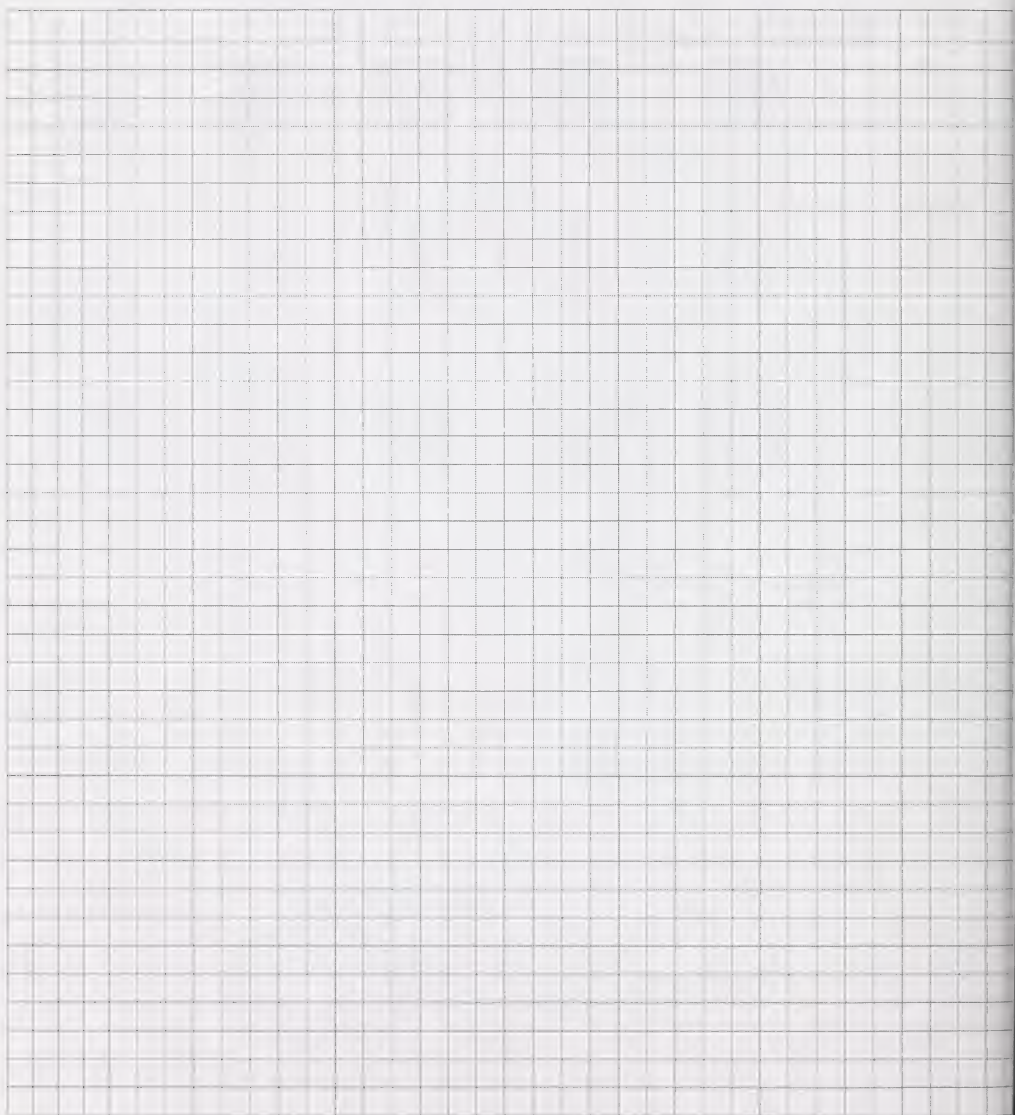


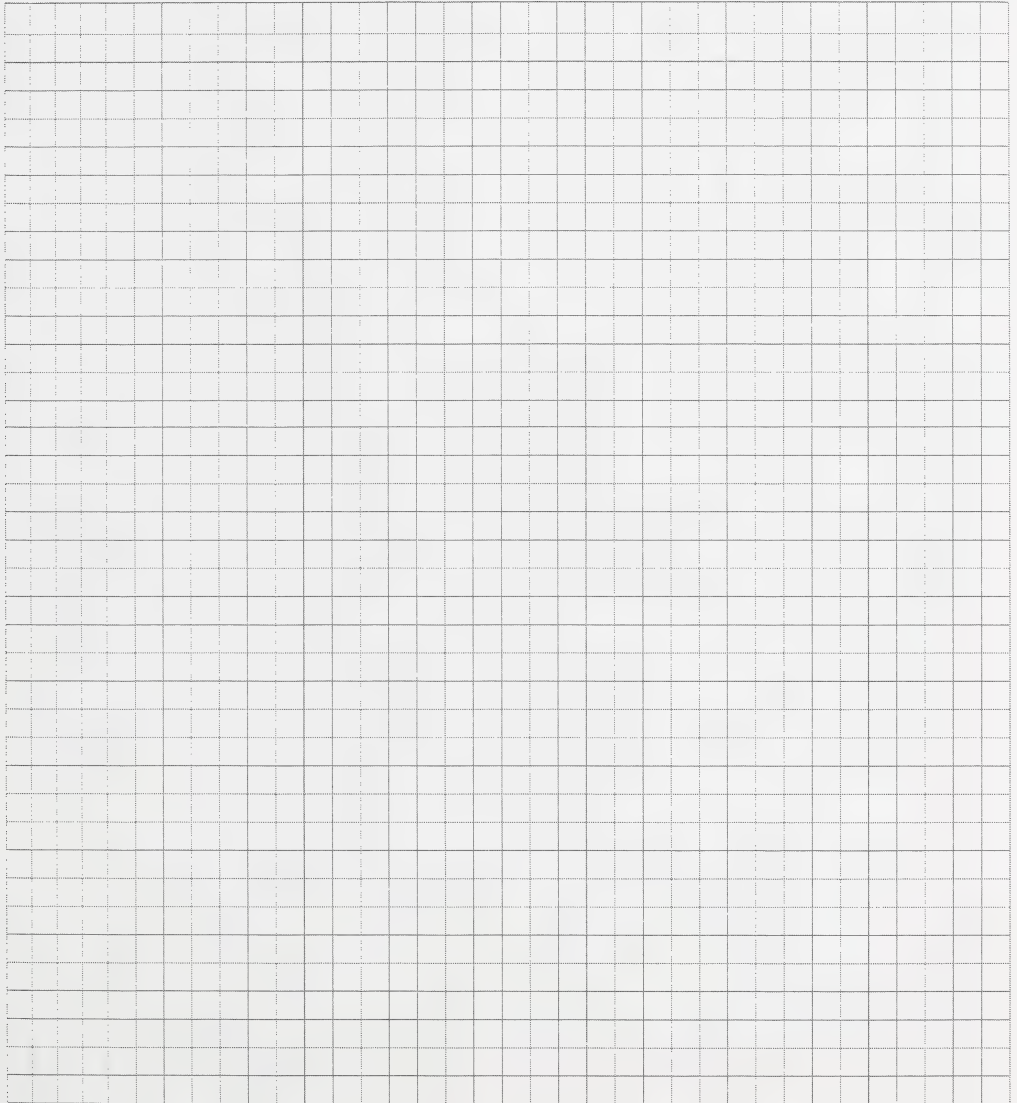


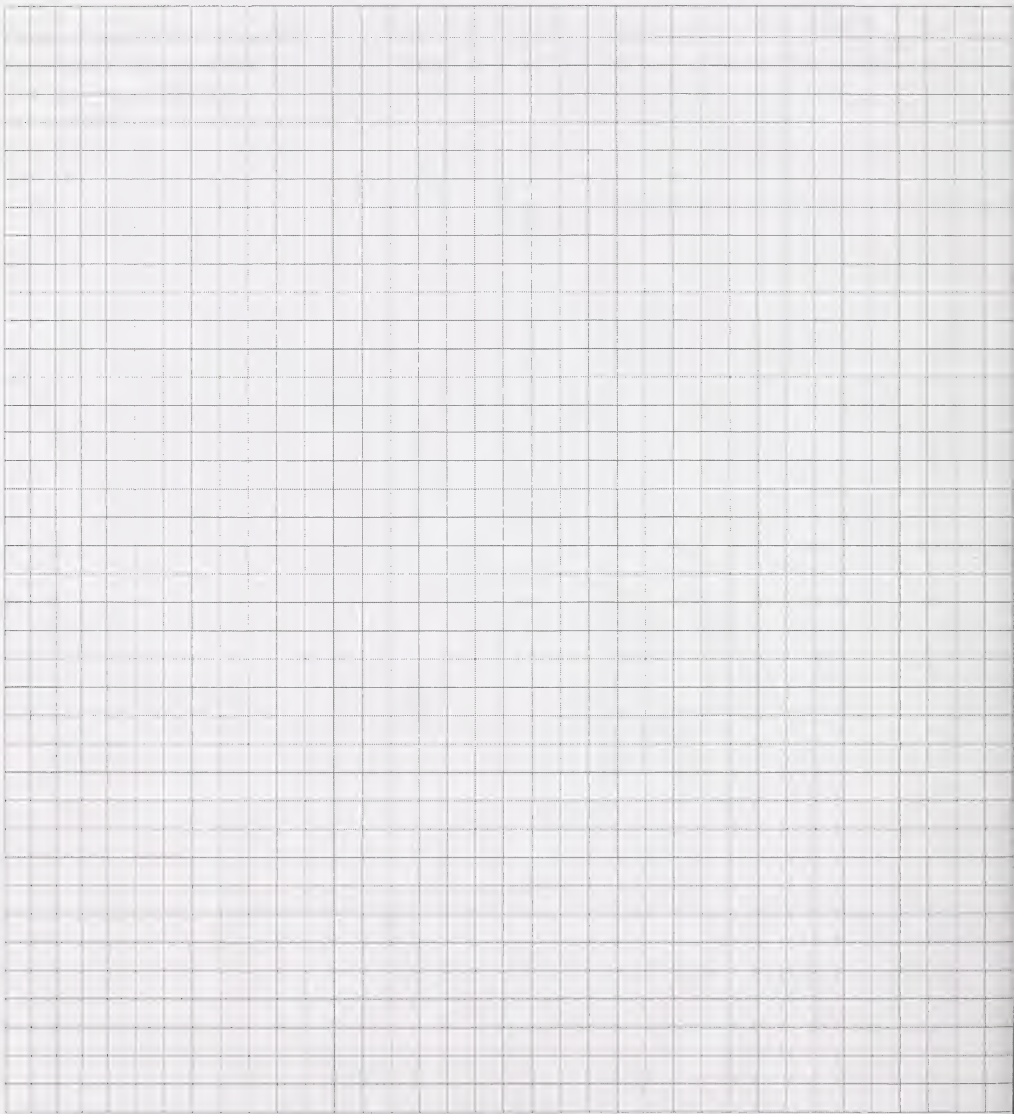
## Pattern Blocks

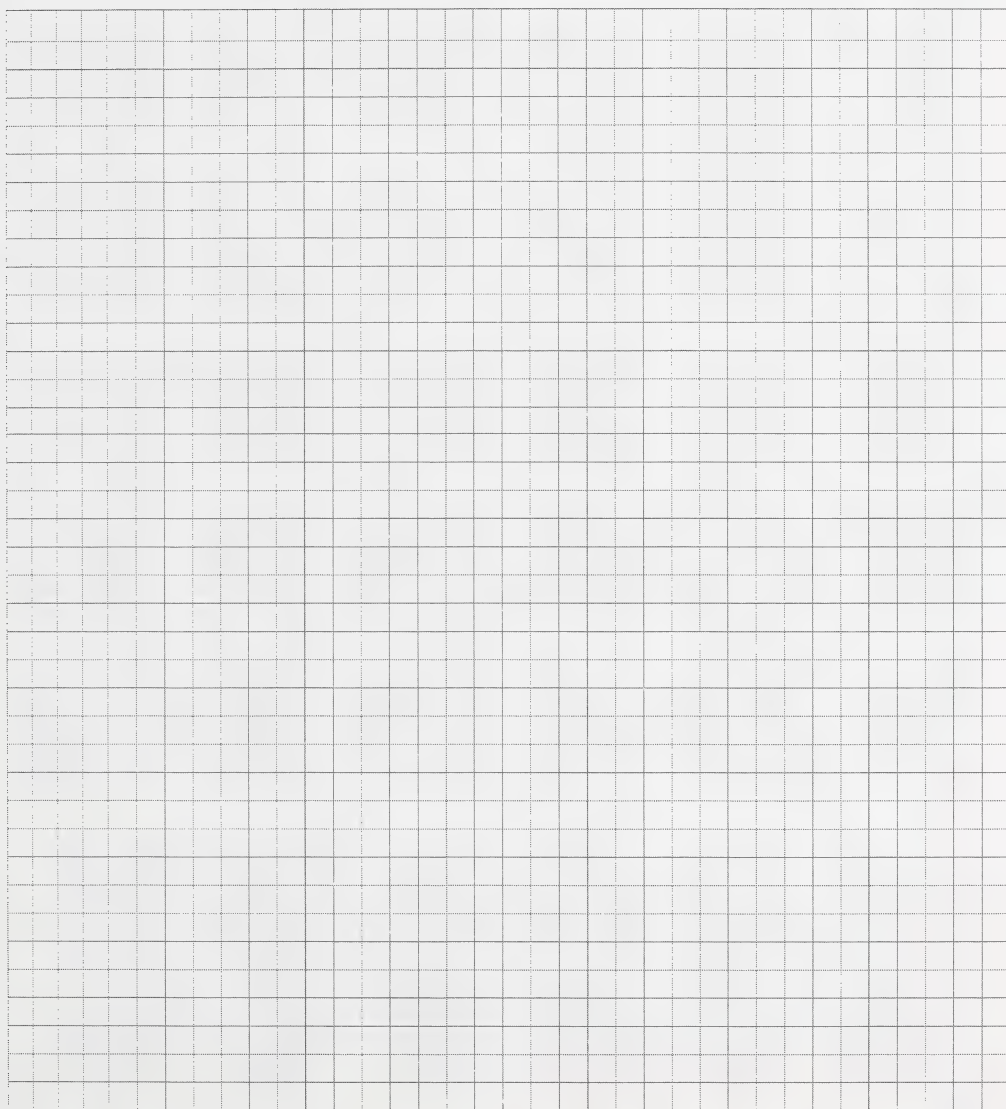




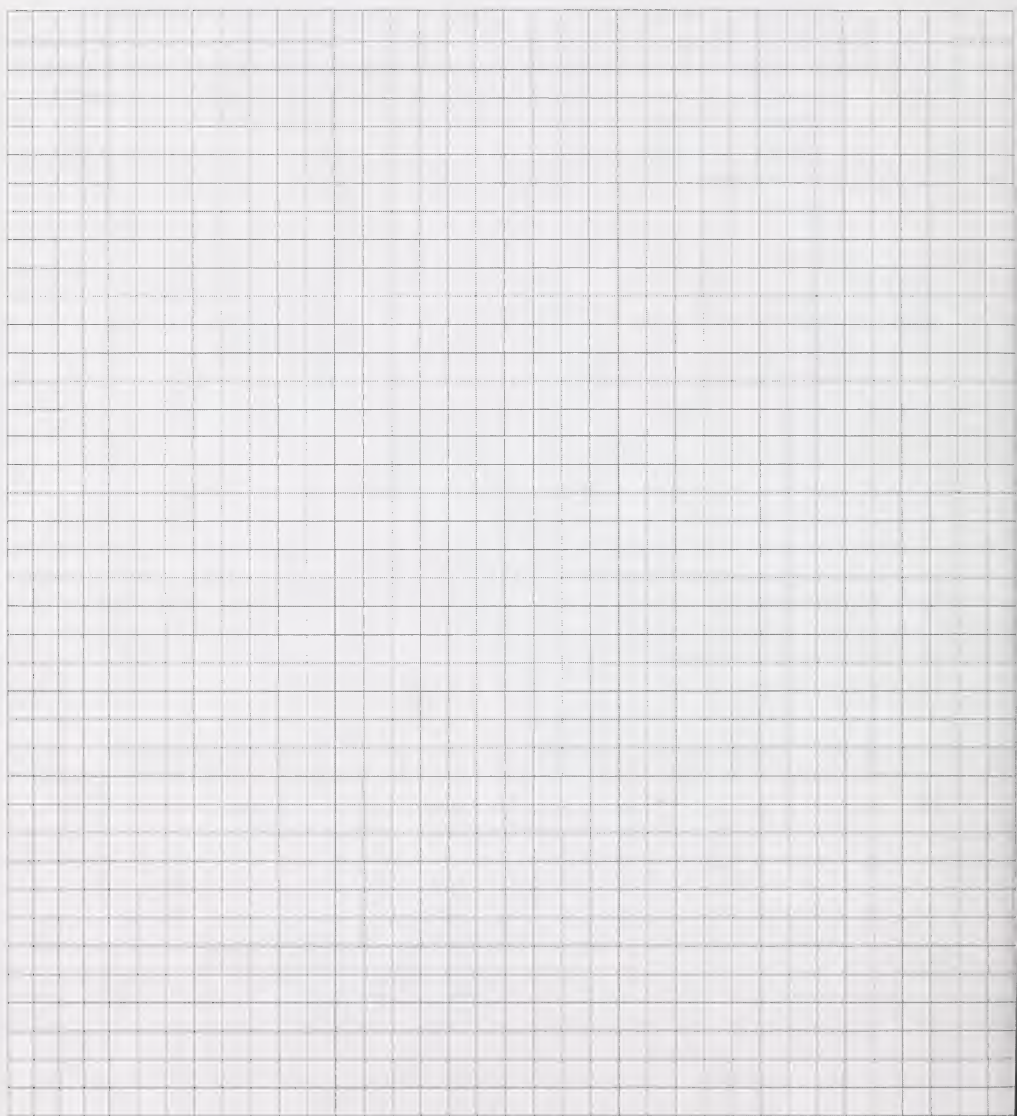




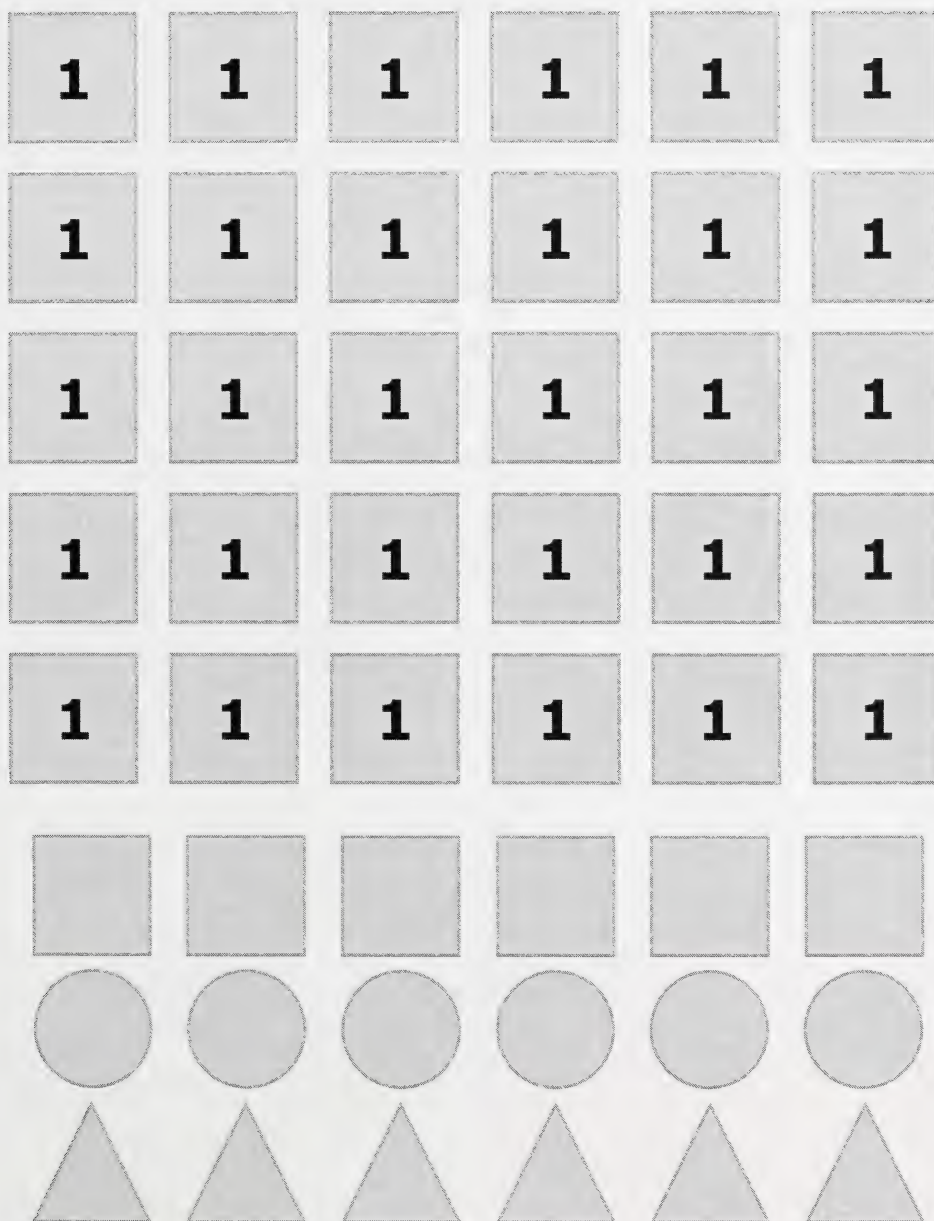




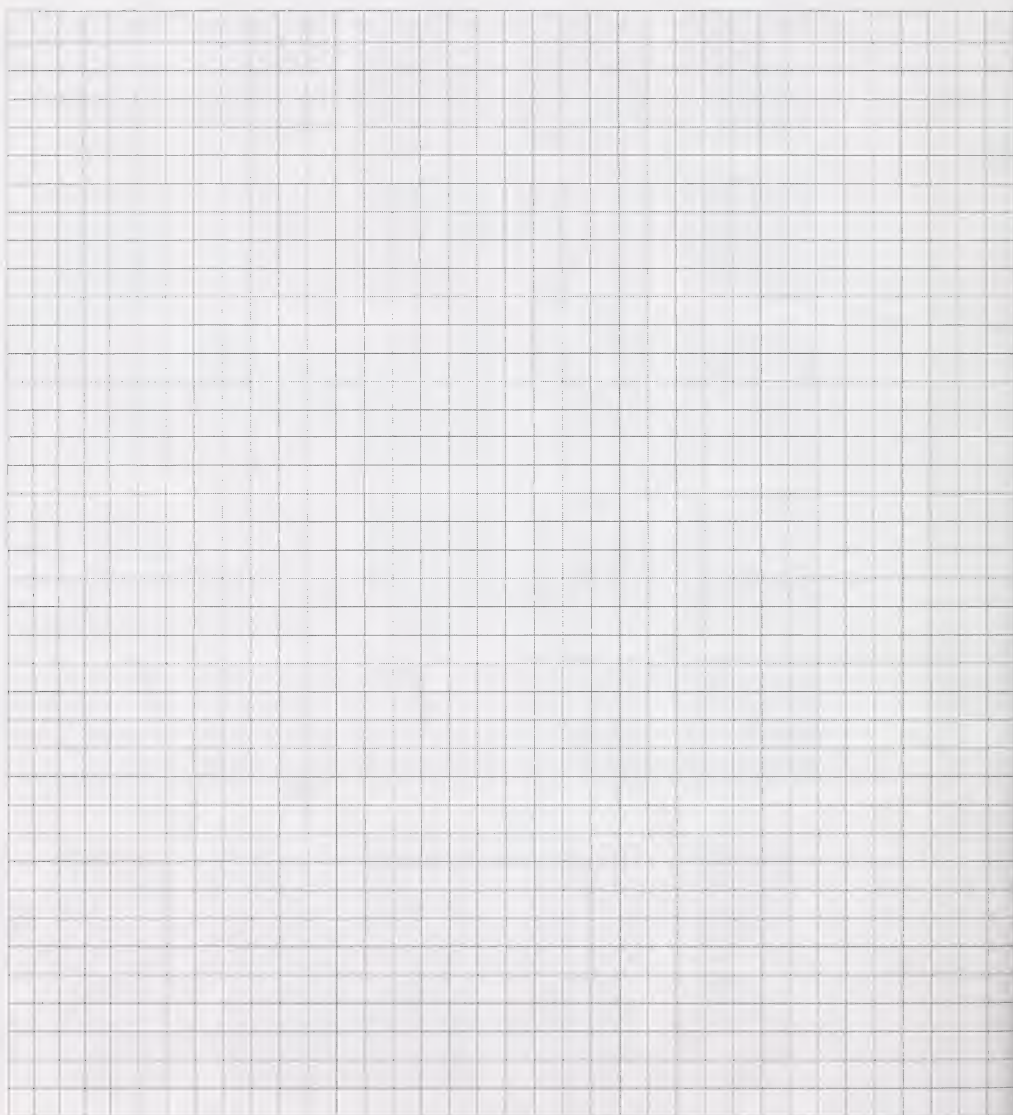




# Algebra Tiles









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